

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001121**Date Inspected:** 19-Dec-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2330**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Lay Tau and Zhang Jiadi**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** 77 meter mock up assembly**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) inspector, Scott Croff, was present at Zhenhua Port Machinery Company, Ltd (ZPMC) to observe the scheduled mock up construction and production construction of the SAS Superstructure.

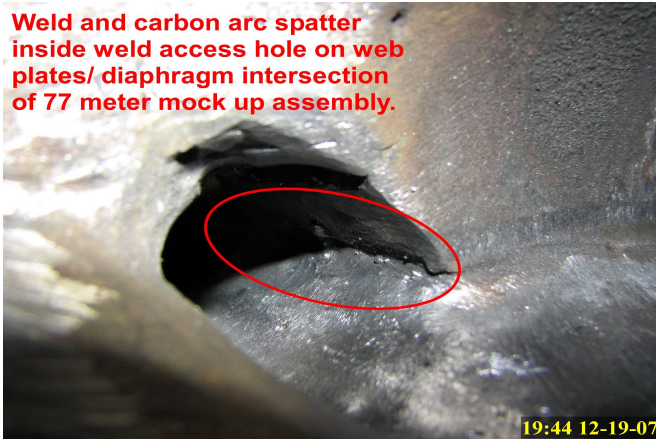
Bay 2: The QA inspector was requested to conduct verification of welds between the diaphragm plates and web plates on the 77 meter mock up assembly. The QA inspector was informed that ZPMC will be placing the skin plates onto the assembly and there will be limited access to conduct verification of these welds after the assembly is completed. The QA inspector was informed that all of the these welds have been visually accepted and magnetic particle testing (MT) has been accepted by ZPMC Quality Control (QC) personnel. The QA inspector started conducting visual inspection of these welds. The QA inspector noted that there appears to be grinding along the toes of the welds at multiple locations with metal removed more than 1.0mm deep. The QA inspector also observed that the vertical partial joint penetration (PJP) welds between the web plates appear to have slag visible through the weld thickness at the start and stop of each weld. The QA inspector observed that weld #3 between P720 and P579 has a notch that appears to be an under filled or lack of fusion between adjacent weld beads. The QA inspector observed that carbon arc slag, partially fused weld spatter and arc strikes are visible at multiple locations across the welds and adjacent to the welds. The QA inspector also visually observed the end of the PJP welds where machining of the metals has exposed the weld surface/cross section. The QA inspector noted the appearance of the land between the PJP welds and measured the visible depth of the PJP welds. 5 of the PJP welds appeared to have the minimum required penetration depth. During these observations, the QA inspector noted a discrepancy and used MT to identify the appearance of 5mm of lack of fusion on the bevel side of weld #7 between P720 and SA95. The QA inspector showed these observed areas to the QC Liaisons Lay Tau and "Ken"

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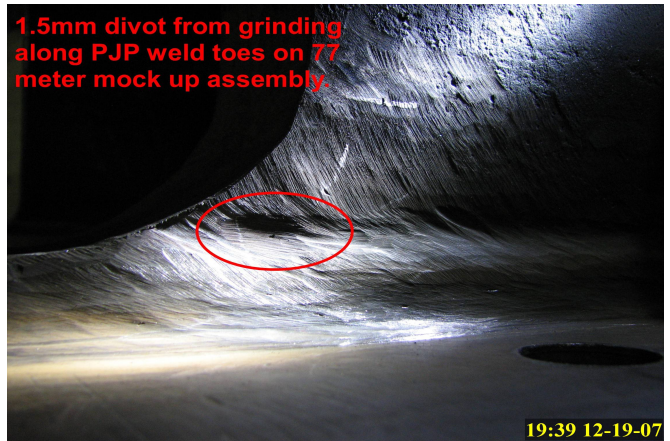
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Zhang Jiadi. The QC Liaisons then spoke with other ZPMC workers and the QA inspector observed ZPMC workers grinding on the end of the PJP weld that appeared to have lack of fusion. The QA inspector was informed that repairs will be done. The QA inspector asked how the repairs would be conducted and was informed that a technician will conduct MT on the PJP weld but no other information was given to the QA inspector at that time. The QA inspector was then asked by the QC Liaison if work could continue with the fabrication of the 77 meter mock up assembly. The QA inspector replied that the QA inspector has no authority to stop ZPMC from working and the apparent non-conforming conditions of the welds observed would be reported.

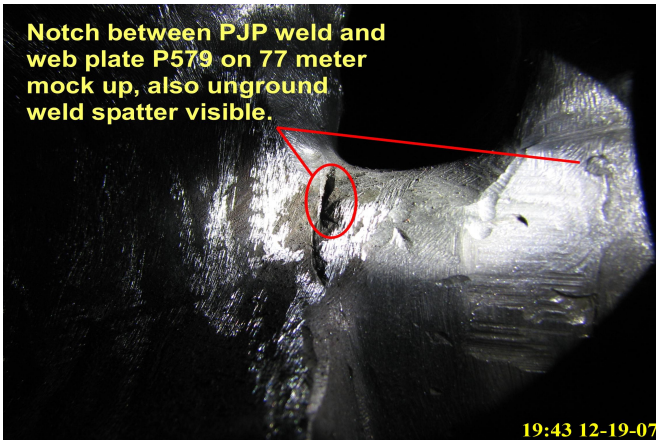
Weld and carbon arc spatter inside weld access hole on web plates/ diaphragm intersection of 77 meter mock up assembly.



1.5mm divot from grinding along PJP weld toes on 77 meter mock up assembly

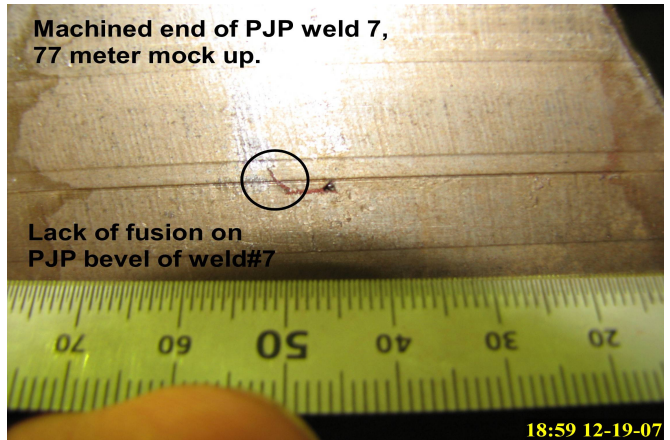


Notch between PJP weld and web plate P579 on 77 meter mock up, also unground weld spatter visible.



Machined end of PJP weld 7, 77 meter mock up.

Lack of fusion on PJP bevel of weld#7



Summary of Conversations:

As noted above, the QA inspector Scott Croff had conversations with the Quality Control Liaisons (QCL) Lay Tau and "Ken" Zhang Jiadi. The QA inspector showed the QCLs the observed welds and located the above mentioned areas that appear to be non-conforming with the contract requirements. The QA inspector also showed them the MT indication on the end of the PJP weld that appeared to be lack of fusion on the bevel. At the time the QCLs were shown these areas, there was discussion between the QCLs and other ZPMC workers. The QA inspector was not informed about the general context of those conversations and does not know what was discussed. Several ZPMC workers were shown the above mentioned areas, at which point the QA inspector was informed that repairs would be done. The QA inspector attempted to ask the QCL Lay Tau to identify clearly what areas of the welds would be repaired, and how would the welds be repaired. The QA inspector was only informed that MT will be done on the PJP weld after grinding. The QA inspector was then asked by the QC Liaison if work could continue with the fabrication of the 77 meter mock up assembly. The QA inspector replied that the QA inspector has no authority to stop ZPMC from working and the apparent non-conforming conditions of the welds observed would

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be reported.

The QA inspector Scott Croff informed the QA inspector Bruce Berger of the above mentioned observations and conversations. The QA inspector then generated a summary report to be included in the daily shift notes. There were no other notable conversations during this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Croff,Scott	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer
